



Digitized by the Internet Archive in 2024







# Virology

Volume 177 1990

#### **EDITORS**

W. K. Joklik, Editor-In-Chief J. R. Nevins F. Rapp A. Berk J. K. Rose M. J. Buchmeier J. G. Shaw

R. Haselkorn M. D. Summers M. M.-C. Lai P. K. Voqt

### ASSOCIATE EDITORS

P. Ahlquist R. Ahmed G. Air A. K. Banerjee C. Basilico K. L. Beemon T. Ben-Porat K. I. Berns H. R. Bose, Jr. T. J. Braciale G. Bruening E. Carstens B. J. Carter J. M. Coffin A. M. Colberg-Poley C. N. Cole R. C. Condit J. A. Cooper D. L. Court R. J. Courtney S. Dales

D. DiMaio W. G. Dougherty J. J. Dunn E. Ehrenfeld R. N. Eisenman S. Emerson M. K. Estes M. Feiss B. N. Fields J. B. Flanegan S. J. Flint W. R. Folk R. I. B. Francki D. A. Galloway E. P. Geiduschek W. Gibson R. M. Goodman R. Goorha D. E. Griffin L. A. Guarino E. Harlow

M. Hayman P. Hearing R. W. Honess M. S. Horwitz M. M. Howe R. Hull E. Hunter T. Hunter A. O. Jackson J. E. Johnson R. E. Johnston J. D. Keene E. Kieff D. F. Klessig E. Knight, Jr. D. M. Knipe R. A. Lamb L. Levintow D. M. Livingston G. P. Lomonossoff R. B. Luftig

J. Majors W. Mason G. McFadden J. E. Mertz P. Model E. Moran T. J. Morris B. Moss R. W. Moyer S. A. Moyer F. A. Murphy D. J. O'Callaghan P. Offit R. A. Owens P. Palese P. Palukaitis E. Paoletti J. T. Parsons M. E. Peeples S. Pestka D. J. Pickup

P. M. Pitha-Rowe R. D. Possee R. H. Purcell V. Racaniello R. F. Ramig L. Ratner H. R. Revel H. L. Robinson W. S. Robinson G. F. Rohrmann B. Roizman L. B. Rothman-Denes R. T. Rouse C. E. Samuel P. A. Schaffer B. S. Schaffhausen R. Schlegal M. J. Schlesinger C. Schmaljohn B. M. Sefton

K. V. Shah V. Stollar J. H. Strauss D. F. Summers M. M. Susskind R. I. Swanstrom R. H. Symons P. Tattersall M. J. Tevethia D. A. Thorley-Lawson C. P. Van Beveren J. L. Van Etten I. M. Verma L. E. Volkman E. K. Wagner R. G. Webster W. S. M. Wold F. Wong-Staal J. S. Youngner N. D. Zinder



## ACADEMIC PRESS, INC.

Harcourt Brace Jovanovich, Publishers San Diego New York Boston London Sydney Tokyo Toronto Copyright © 1990 by Academic Press, Inc.

#### All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1990 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0042-6822/90 \$3.00

MADE IN THE UNITED STATES OF AMERICA

This journal is printed on acid-free paper.



## **Contents of Volume 177**

# Number 1, July 1990

| Interference Patterns of Human Immunodeficiency Viruses HIV-1 and HIV-2  | Audrey R. Hart and Miles W. Cloyd   | 1   |
|--|---|-----|
| Nonsense Mutants Defining Seven New Genes of the Lipid-<br>Containing Bacteriophage PR4  | Thomas Vanden Boom and John E. Cronan, Jr   | 11  |
| A Physical-Genetic Map of the Lipid-Containing Bacterio-<br>phage PR4  | Thomas Vanden Boom and John E. Cronan, Jr   | 23  |
| Transcriptional Activity of the Rous Sarcoma Virus Long<br>Terminal Repeat Correlates with Binding of a Factor to<br>an Upstream CCAAT Box in Vitro                                | Brian T. Greuel, Linda Sealy, and John E. Majors  | 33  |
| Epstein-Barr Virus Genotypes Associated with Nasopharyngeal Carcinoma in Southern China  | Maria Li Lung, Robert Shihman Chang, Mei Ling<br>Huang, Hui-Yu Guo, Damon Choy, Jonathan<br>Sham, Shiu Ying Tsao, Paul Cheng, and Mun<br>Hon Ng | 44  |
| Cleavage between nsP1 and nsP2 Initiates the Processing<br>Pathway of Sindbis Virus Nonstructural Polyprotein<br>P123  | Yukio Shirako and James H. Strauss  | 54  |
| Immediate Protection of Mice from Lethal Wild-Type Sendai<br>Virus (HVJ) Infections by a Temperature-Sensitive Mu-<br>tant, HVJpi, Possessing Homologous Interfering Ca-<br>pacity | Katsuhiro Kiyotani, Shinichi Takao, Takemasa<br>Sakaguchi, and Tetsuya Yoshida  | 65  |
| The Inhibition of Mouse L-Cell 45 S Ribosomal RNA Processing Is a Highly uv-Resistant Property of Vesicular Stomatitis Virus   | Malgorzata Zan, Peter Evans, and Jean Lucas-<br>Lenard  | 75  |
| Geminivirus Coat Protein Gene Replacement Alters Insect<br>Specificity   | R. W. Briddon, M. S. Pinner, J. Stanley, and P. G. Markham  | 85  |
| Bacteriophage Mu Sites and Functions Involved in the Inhibition of $\lambda$ ::Mini-Mu Growth  | Anna C. Glasgow, Janet L. Miller, and Martha M. Howe  | 95  |
| The N-Terminal env-Derived Amino Acids of v-rel Are Required for Full Transforming Activity  | Kenneth Garson, Heather Percival, and C. Yong Kang  | 106 |
| Sequence Analysis of P Gene of Human Parainfluenza Type<br>2 Virus: P and Cysteine-Rich Proteins Are Translated by<br>Two mRNAs That Differ by Two Nontemplated G Residues         | Shinji Ohgimoto, Hisanori Bando, Mitsuo Ka-<br>wano, Kousuke Okamoto, Kunio Kondo, Ma-<br>sato Tsurudome, Machiko Nishio, and Ya-<br>suhiko Ito | 116 |
| Nucleotide Sequence of the Leader and Nucleocapsid Pro-<br>tein Gene of Mumps Virus and Epitope Mapping with<br>the <i>in Vitro</i> Expressed Nucleocapsid Protein                 | Kiyoshi Tanabayashi, Kaoru Takeuchi, Michiko<br>Hishiyama, Akio Yamada, Masato Tsuru-<br>dome, Yasuhiko Ito, and Akira Sugiura                  | 124 |
| Sendai Virus Gene Expression in Lytically and Persistently<br>Infected Cells   | H. E. Homann, P. H. Hofschneider, and W. J. Neubert   | 131 |

| The Complete Genome Structure and Synthesis of Infectious RNA from Clones of Tomato Bushy Stunt Virus  | Patrick Q. Hearne, David A. Knorr, Bradley I. Hill-<br>man, and Thomas J. Morris  | 14  |
|--|---|-----|
| Infectious Transcripts and Nucleotide Sequence of Cloned cDNA of the Potexvirus White Clover Mosaic Virus  | David L. Beck, Richard L. S. Forster, Michael W. Bevan, Kristine A. Boxen, and Suzanne C. Lowe                              | 15  |
| Production of Yellow Fever Virus Proteins in Infected Cells:<br>Identification of Discrete Polyprotein Species and Analysis of Cleavage Kinetics Using Region-Specific Polyclonal Antisera           | Thomas J. Chambers, David W. McCourt, and Charles M. Rice   | 15  |
| Post-translational Processing of the Glycoproteins of Lymphocytic Choriomeningitis Virus   | K. E. Wright, R. C. Spiro, J. W. Burns, and M. J. Buchmeier   | 17! |
| Molecular Cloning and Nucleotide Sequence of Hog Cholera Virus Strain Brescia and Mapping of the Genomic Region Encoding Envelope Protein E1   | Rob J. M. Moormann, Petra A. M. Warmerdam,<br>Bert van der Meer, Wim M. M. Schaaper,<br>Gert Wensvoort, and Marcel M. Hulst | 184 |
| Synthesis and Processing of the Nonstructural Polyproteins of Several Temperature-Sensitive Mutants of Sindbis Virus   | W. Reef Hardy, Young S. Hahn, Raoul J. de Groot,<br>Ellen G. Strauss, and James H. Strauss                                  | 199 |
| Vesicular Stomatitis New Jersey Virus Glycoprotein Gene<br>Sequence and Neutralizing Epitope Stability in an Enzo-<br>otic Focus   | Suzanne D. Vernon, Luis L. Rodriguez, and Geoffrey J. Letchworth  | 209 |
| Structure, Self-Cleavage, and Replication of Two Viroid-like<br>Satellite RNAs (Virusoids) of Subterranean Clover Mot-<br>tle Virus  | Christopher Davies, James Haseloff, and Robert<br>H. Symons   | 216 |
| Sequence of the Genome RNA of Rubella Virus: Evidence for Genetic Rearrangement during Togavirus Evolution   | Geraldina Dominguez, Chin-Yen Wang, and Teryl<br>K. Frey  | 225 |
| Inducible Gene Expression from Vaccinia Virus Vectors  | Jose F. Rodriguez and Geoffrey L. Smith   | 239 |
| Expression of Cellular Genes in CD4 Positive Lymphoid Cells Infected by the Human Immunodeficiency Virus, HIV-1: Evidence for a Host Protein Synthesis Shut-Off Induced by Cellular mRNA Degradation | Michael B. Agy, Marlene Wambach, Karlissa<br>Foy, and Michael G. Katze  | 251 |
| The Proteinase Polypeptide of Adenovirus Serotype 2 Virions  | Carl W. Anderson  | 259 |
| Detection of Bacteriophage $\phi$ 6 Minus-Strand RNA and Novel mRNA Isoconformers Synthesized in Vivo and in Vitro, by Strand-Separating Agarose Gels  | Nikos Pagratis and Helen R. Revel   | 273 |
| Minus-Strand RNA Synthesis by the Segmented Double-Stranded RNA Bacteriophage $\phi$ 6 Requires Continuous Protein Synthesis   | Nikos Pagratis and Helen R. Revel   | 281 |
| Sequential Disassembly of the Cytoskeleton in BHK <sub>21</sub> Cells<br>Infected with Vesicular Stomatitis Virus  | Keiko O. Simon, Patricia A. Whitaker-Dowling,<br>Julius S. Youngner, and Christopher C. Wid-<br>nell                        | 200 |
| Effect of Actinomycin D on Replication of Satellite Tobacco  | Becky Buckley and George Bruening   | 289 |

| A Novel Proviral Clone of HIV-2: Biological and Phylogenetic Relationship to Other Primate Immunodeficiency Viruses  | Frank Kirchhoff, Klaus Dieter Jentsch, Barbara Bachmann, Andreas Stuke, Carine Laloux, Wolfgang Lüke, Christiane Stahl-Hennig, Josef Schneider, Katja Nieselt, Manfred Eigen, and Gerhard Hunsmann | 305 |
|--|--|-----|
|  | and demark maintain  | 000 |
| Oligomerization of Friend Spleen Focus-Forming Virus (SFFV) env Glycoproteins  | Yanyan Yang, Arinobu Tojo, Naoko Watanabe, and Hiroshi Amanuma   | 312 |
| The Role of the 5' Nontranslated Regions of the Fusion Pro-<br>tein mRNAs of Canine Distemper Virus and Rinderpest<br>Virus  | Sharon A. Evans, Graham J. Belsham, and Thomas Barrett   | 317 |
| Completion of the Genomic Sequence of the Simian Rota-<br>virus SA11: Nucleotide Sequences of Segments 1, 2,<br>and 3  | D. B. Mitchell and G. W. Both  | 324 |
| Physiology and Function of the Vero Cell Receptor for the Hepatitis B Virus Small S Protein  | Kazuo Komai and Mark E. Peeples  | 332 |
| Comparison of the Positions and Efficiency of Cleavage Activation of Fusion Protein Precursors of Virulent and Avirulent Strains of Newcastle Disease Virus: Insights into the Specificities of Activating Proteases | Jeffrey J. Gorman, Gary L. Corino, and Paul W. Selleck   | 339 |
| Ubiquitinated Conjugates Are Found in Preparations of Several Plant Viruses  | D. Hazelwood and Milton Zaitlin  | 352 |
| Monoclonal Antibodies Raised to Purified Woodchuck Hep-<br>atitis Virus Core Antigen Particles Demonstrate X Anti-<br>gen Reactivity   | Mark A. Feitelson, Marcia M. Clayton, and Bette<br>Phimister   | 357 |
| Short Commu  | unications   |     |
| X Antigen Polypeptides in the Sera of Hepatitis B Virus-Infected Patients  | Mark A. Feitelson and Marcia M. Clayton  | 367 |
| Coding Strategy of Rice Stripe Virus: Major Nonstructural<br>Protein Is Encoded in Viral RNA Segment 4 and Coat<br>Protein in RNA Complementary to Segment 3   | Yuriko Hayano, Tetsuji Kakutani, Takaharu Hayashi, and Yuzo Minobe   | 372 |
| Cellular Mechanisms in the Superinfection Exclusion of Vesicular Stomatitis Virus  | Keiko O. Simon, John J. Cardamone, Jr., Patricia<br>A. Whitaker-Dowling, Julius S. Youngner,<br>and Christopher C. Widnell   | 375 |
| Differential Viral Gene Expression and Its Effect on the Bio-<br>logical Properties of the Cell Clones of an HIV-1-In-<br>fected Cell Line   | V. S. Kalyanaraman, V. Rodriguez, S. Josephs,<br>R. C. Gallo, and M. G. Sarngadharan   | 380 |
| Specific Infection of Central Nervous System White Matter by a Variant of Gross Murine Leukemia Virus  | Nancy A. Simonian, Louis A. Rosenthal, Jona-<br>than Korostoff, William F. Hickey, Kenneth J.<br>Blank, and Glen N. Gaulton  | 384 |
| Two Nontemplated Nucleotide Additions Are Required to<br>Generate the P mRNA of Parainfluenza Virus Type 2<br>since the RNA Genome Encodes Protein V   | J. A. Southern, B. Precious, and R. E. Randall   | 388 |
| Envelope Gene Sequence of HTLV-1 Isolate MT-2 and Its Comparison with Other HTLV-1 Isolates  | Gary S. Gray, Michael White, Tom Bartman, and David Mann   | 391 |

| Identification of a Bluetongue Virus Serotype 1-Specific<br>Ovine Helper T-Cell Determinant in Outer Capsid Pro-<br>tein VP2  | H. Takamatsu, J. N. Burroughs, A. M. Wade-<br>Evans, and P. P. C. Mertens  | 396 |
|---|--|-----|
| Genome Organization and Taxonomic Position of Human<br>Papillomavirus Type 47 Inferred from Its DNA Sequence  | Tohru Kiyono, Ayumi Adachi, and Masahide Ishibashi   | 401 |
| Transcriptional Activation of the Human Immunodeficiency Virus Type 1 Long Terminal Repeat by Hepatitis B Virus X-Protein Requires <i>de Novo</i> Protein Synthesis                           | Jr-Shin Twu, Jane Y. Wu, and William S. Robinson   | 406 |
| New Evidence for the Precursor Role of 14 S Subunits in Poliovirus Morphogenesis  | Bart Rombaut, Raf Vrijsen, and Albert Boeyé  | 411 |
| Experimental Infection with Human Papillomavirus Type 1 of Human Hand and Foot Skin   | John W. Kreider, Susan D. Patrick, Nancy M. Cladel, and Patricia A. Welsh  | 415 |
| Author Index for Volume 177, Number 1   |  | 418 |
| Number 2, Au  | igust 1990   |     |
| Minirev   | iew  |     |
| The p53 Protein and Its Interactions with the Oncogene Products of the Small DNA Tumor Viruses  | Arnold J. Levine   | 419 |
| Regular Ar  | rticles  |     |
| Immortalization of Primary Rat Embryo Cells by Human Papillomavirus Type 11 DNA Is Enhanced upon Cotransfer of ras  | Christa Cerni, Kurt Patocka, and Guerrino Meneguzzi  | 427 |
| Herpes Simplex Virus IgG Fc Receptors Induced Using Re-<br>combinant Adenovirus Vectors Expressing Glycopro-<br>teins E and I   | Tomas Hanke, Frank L. Graham, Viraphong Luli-<br>tanond, and David C. Johnson  | 437 |
| Capsomer Proteins of Bacteriophage PRD1, a Bacterial Virus with a Membrane  | Jaana K. H. Bamford and Dennis H. Bamford  | 445 |
| Adenovirus Vaccine Vectors Expressing Hepatitis B Surface<br>Antigen: Importance of Regulatory Elements in the Adenovirus Major Late Intron   | Bruce B. Mason, Alan R. Davis, Bheem M. Bhat,<br>Murty Chengalvala, Michael D. Lubeck, Gor-<br>don Zandle, Beverley Kostek, Stan Cholo-<br>dofsky, Surendra Dheer, Katherine Molnar-<br>Kimber, Satoshi Mizutani, and Paul P. Hung | 452 |
| Deletion of Repeated Sequences from Tobacco Mosaic Virus Mutants with Two Coat Protein Genes  | David L. Beck and William O. Dawson  | 462 |
| Membrane Association and Secretion of the Japanese Encephalitis Virus NS1 Protein from Cells Expressing NS1 cDNA  | Wufang Fan and Peter W. Mason  | 470 |
| Alternate Splicing in a Parvoviral Nonstructural Gene Links a Common Amino-Terminal Sequence to Downstream Domains Which Confer Radically Different Localization and Turnover Characteristics | Susan F. Cotmore and Peter Tattersall  | 477 |

| Sequence and Expression Analysis of Potential Nonstructural Proteins of 4.9, 4.8, 12.7, and 9.5 kDa Encoded between the Spike and Membrane Protein Genes of the Bovine Coronavirus | Sushma Abraham, Thomas E. Kienzle, William E.<br>Lapps, and David A. Brian  | 488 |
|--|---|-----|
| Detection of an IE Responsive Element(s) in the BamHI J<br>Fragment of Human Cytomegalovirus AD169   | Anne E. Reifel-Miller and Chao-Hung Lee   | 496 |
| Transformation-Defective Mutants with 5' Deletions of the<br>src Gene Are Frequently Generated during Replication<br>of Rous Sarcoma Virus in Established Quail Fibroblasts        | Jean Vianney Barnier, Maria Marx, Philippe Dezelee, Danielle Laugier, Françoise Poirier, Georges Calothy, Jana Hillova, and Miroslav Hill | 505 |
| Nuclear Compartmentation of Glycoprotein B of Human Cy-<br>tomegalovirus   | K. Radsak, K. H. Brücher, W. Britt, H. Shiou, D. Schneider, and A. Kollert  | 515 |
| Specific Inhibition of the Synthesis of Influenza Virus Late<br>Proteins and Stimulation of Early, M2, and NS2 Protein<br>Synthesis by 3-Deazaadenosine                            | Andreas A. H. Fischer, Karin Müller, and Christoph Scholtissek  | 523 |
| Analysis of the Hamster Polyomavirus Infection in Vitro:<br>Host-Restricted Productive Cycle   | Christophe de la Roche Saint André, Francis<br>Harper, and Jean Feunteun  | 532 |
| Nucleotide Sequence of the Virulent SA-14 Strain of Japanese Encephalitis Virus and Its Attenuated Vaccine Derivative, SA-14-14-2  | Sorachai Nitayaphan, Joyce A. Grant, Gwong-<br>Jen J. Chang, and Dennis W. Trent  | 541 |
| The Complete Nucleotide Sequence of the Genomic RNA of the Tobamovirus Tobacco Mild Green Mosaic Virus   | Ignacio Solis and Fernando Garcia-Arenal  | 553 |
| Mechanisms of Transmissible Gastroenteritis Coronavirus Neutralization   | Carlos Suñé, Gustavo Jiménez, Isabel Correa,<br>María J. Bullido, Fátima Gebauer, Cristian<br>Smerdou, and Luis Enjuanes                  | 559 |
| Analysis of the Binding Sites for the Varicella-Zoster Virus<br>Gene 51 Product within the Viral Origin of DNA Replica-<br>tion  | Nigel D. Stow, Hazel M. Weir, and Elizabeth C. Stow   | 570 |
| Antigenic, Sequence, and Crystal Variation in Influenza B Neuraminidase  | Gillian M. Air, W. Graeme Laver, Ming Luo, Ste-<br>phen J. Stray, Gayla Legrone, and Robert G.<br>Webster                                 | 578 |
| Identification and Nucleotide Sequence of the Gene Encoding a Surface Antigen Induced by Vaccinia Virus  | Yoshiaki Ueda, Shigeru Morikawa, and Yoshi-<br>haru Matsuura  | 588 |
| Transactivation of the p53 Oncogene by E1a Gene Products   | Antony Braithwaite, Colleen Nelson, Anna Skuli-<br>mowski, Jill McGovern, Denis Pigott, and<br>John Jenkins                               | 595 |
| Transcriptional Activation from the Long-Terminal Repeat of Human Immunodeficiency Virus in Vitro  | Takashi Okamoto, Thomas Benter, Steven F. Josephs, M. Reza Sadaie, and Flossie Wong-Staal   | 606 |
| Mode of Replication of Lymphocytic Choriomeningitis Virus in Persistently Infected Cultivated Mouse L Cells  | Michael Bruns, Thomas Kratzberg, Wolfgang<br>Zeller, and Fritz Lehmann-Grube  | 615 |
| Selection of Genome Segments Following Coinfection of Chicken Fibroblasts with Avian Reoviruses  | Yawei Ni and Maurice C. Kemp  | 625 |

| Genetics of Mouse Hepatitis Virus Transcription: Identifi-<br>cation of Cistrons which May Function in Positive and<br>Negative Strand RNA Synthesis                      | Mary C. Schaad, Stephen A. Stohlman, James<br>Egbert, Karen Lum, Kaisong Fu, Theodore<br>Wei, Jr., and Ralph S. Baric  | 634 |
|---|--|-----|
| Establishing a Genetic Recombination Map for Murine Co-<br>ronavirus Strain A59 Complementation Groups  | Ralph S. Baric, Kaisong Fu, Mary C. Schaad, and Stephen A. Stohlman  | 646 |
| Translational Inhibition by Cytomegalovirus Transcript<br>Leaders   | Bonita J. Biegalke and Adam P. Geballe   | 657 |
| Antibodies to Dengue 2 Virus E-Glycoprotein Synthetic Pep-<br>tides Identify Antigenic Conformation   | John T. Roehrig, Alison J. Johnson, Ann R. Hunt,<br>Richard A. Bolin, and May C. Chu                                   | 668 |
| Variants of Venezuelan Equine Encephalitis Virus That Resist Neutralization Define a Domain of the E2 Glycoprotein  | Barbara J. B. Johnson, John R. Brubaker, John T. Roehrig, and Dennis W. Trent  | 676 |
| Identification of Three Genes Nonessential for Growth in<br>Cell Culture near the Right Terminus of the Unique Se-<br>quences of Long Component of Herpes Simplex Virus 1 | David E. Barker and Bernard Roizman  | 684 |
| Hepatitis Delta Virus RNA, Protein Synthesis and Associated Cytotoxicity in a Stably Transfected Cell Line  | T. B. Macnaughton, E. J. Gowans, A. R. Jilbert, and C. J. Burrell  | 692 |
| Genome Structure of Tobacco Necrosis Virus Strain A   | Frank Meulewaeter, Jef Seurinck, and John van Emmelo   | 699 |
| Infectious in Vitro Transcripts from a Plum Pox Potyvirus cDNA Clone  | José Luis Riechmann, Sonia Laín, and Juan Anto-<br>nio García  | 710 |
| Recombination Sites in Cauliflower Mosaic Virus DNAs: Implications for Mechanisms of Recombination  | Valerie Ray Vaden and Ulrich Melcher   | 717 |
| Immunogenicity of Herpes Simplex Virus Type 1 Glycoproteins Expressed in Vaccinia Virus Recombinants  | B. A. Blacklaws, S. Krishna, A. C. Minson, and A. A. Nash  | 727 |
| In Vitro Regulation of Human Hepatitis B Virus Core Gene Transcription  | Arie Waisman, Yosef Aloni, and Orgad Laub  | 737 |
| Characterization of Preearly Genes in the Terminal Repeti-<br>tion of Bacteriophage BF23 DNA by Nucleotide Se-<br>quencing and Restriction Mapping                        | Jonathan S. Wiest and D. James McCorquodale  | 745 |
| Short Commu   | nications  |     |
| Identity of Genes A2 and A3 of Bacteriophage BF23   | Jonathan D. Rose and D. James McCorquodale   | 753 |
| The env Gene Variability Is Not Directly Related to the High Cytopathogenicity of an HIV1 Variant   | Bruno Spire, Ivan Hirsch, Christine Neuveut, Joséphine Sire, and Jean-Claude Chermann                                  | 756 |
| Differences in Replication and Cytopathogenicity of Human<br>Immunodeficiency Virus Type 1 (HIV-1) Are Not Deter-<br>mined by Long Terminal Repeats (LTR)                 | Ivan Hirsch, Bruno Spire, Yasuko Tsunetsugu-<br>Yokota, Christine Neuveut, Joséphine Sire,<br>and Jean-Claude Chermann | 759 |
| Construction of an Infectious Genomic Clone of Porcine<br>Parvovirus: Effect of the 5'-End on DNA Replication   | Jose I. Casal, Esmeralda Diaz-Aroca, Ana I.<br>Ranz, and Juan J. Manclus   | 764 |
| Map Location of Lactate Dehydrogenase-Elevating Virus   | E. K. Godeny, D. W. Speicher, and M. A. Brinton  | 768 |

(LDV) Capsid Protein (Vp1) Gene

768

| Characterization of the Negative Regulatory Element of the 5' Noncoding Region of Moloney Murine Leukemia Virus in Mouse Embryonal Carcinoma Cells   | Toshio Tsukiyama, Ohtsura Niwa, and Kenjiro<br>Yokoro  | 772 |
|--|--|-----|
| HSV-2-Induced Tumorigenicity in HPV16-Immortalized Human Genital Keratinocytes   | Joseph A. DiPaolo, Craig D. Woodworth, Nicholas C. Popescu, Debra L. Koval, Jose V. Lopez, and Jay Doniger                             | 777 |
| Identification of a Nucleotide Deletion in Parts of Polypep-<br>tide 3A in Two Independent Attenuated Aphthovirus<br>Strains   | Ana T. Giraudo, Ewald Beck, Klaus Strebel,<br>Paulo Augé de Mello, José L. La Torre, Edu-<br>ardo A. Scodeller, and Ingrid E. Bergmann | 780 |
| Activity and Enhancer Binding Factors for JC Virus Regulatory Elements in Differentiating Embryonal Carcinoma Cells  | Harikrishna Nakshatri, Alan Pater, and Mary M.<br>Pater  | 784 |
| HIV-1 Infection of Normal Human Macrophage Cultures:<br>Implication for Silent Infection   | Antonio Valentin, Jan Albert, Eva Maria Fenyö,<br>and Birgitta Åsjö  | 790 |
| Description of a Procedure Which Allows Isolation of Viral<br>Nonstructural Proteins from BHK Vertebrate Cells In-<br>fected with the West Nile Flavivirus in a State Which<br>Allows Their Direct Chemical Characterization | Gerd Wengler, Gisela Wengler, Thomas Nowak, and Elke Castle  | 795 |
| Restricted Expression of Measles Virus in Primary Rat Astroglial Cells   | Sibylle Schneider-Schaulies, Uwe G. Liebert, K. Baczko, and V. ter Meulen  | 802 |
| The Hemagglutinating Glycoproteins of Influenza B and C Viruses Are Acylated with Different Fatty Acids  | Michael Veit, Georg Herrler, Michael F. G.<br>Schmidt, Rudolf Rott, and Hans-Dieter<br>Klenk   | 807 |
| The Coding Region for the 54-kDa Protein of Several Pestiviruses Lacks Host Insertions but Reveals a "Zinc Finger-Like" Domain   | Laurence De Moerlooze, Moira Desport, Andre<br>Renard, Corine Lecomte, Joe Brownlie, and<br>Joseph A. Martial                          | 812 |
| Coexpression of Biologically Active Simian Immunodefi-<br>ciency Virus (SIV) Rev and Env in an SV40 System: The<br>SIV rev Gene Regulates Env Expression   | Sheau-Mei Cheng, Marlene Blume, Shaw-Guang<br>Lee, Paul P. Hung, Vanessa M. Hirsch, and<br>Philip R. Johnson                           | 816 |
| Molecular Cloning and Comparative Sequence Analyses of<br>Bluetongue Virus S1 Segments by Selective Synthesis<br>of Specific Full-Length DNA Copies of dsRNA Genes   | Timothy F. Kowalik, Yi-Yuan Yang, and Joseph<br>KK. Li   | 820 |
| Effect of Human Cytomegalovirus on Replication of SV40<br>Origin and the Expression of T Antigen   | Gregory S. Pari and Stephen C. St. Jeor  | 824 |
| Two Forms of the Major Barley Stripe Mosaic Virus Non-<br>structural Protein Are Synthesized in Vivo from Alterna-<br>tive Initiation Codons   | I. T. D. Petty and A. O. Jackson   | 829 |
| Molecular Cloning of a Novel Human Papillomavirus (Type 58) from an Invasive Cervical Carcinoma  | Toshihiko Matsukura and Motoyasu Sugase  | 833 |
| Friend Virus Replication in Normal and Immunosuppressed C57BL/6 Mice   | Henk C. Van der Gaag and Arthur A. Axelrad   | 837 |
| Author Index for Volume 177  |  | 840 |
| Subject Index for Volume 177   |  | 842 |

